

# **Photometer scheduler**

## **Scheduler and groups descriptions**

Version 1.03

## 1 Document history

Rev	Chapter	Description of modification / changes	Date
1.00		Initial release.	21/04/2014
1.01	1, 2, 3	Add document history. Add 3SUN before each SKY measures. Change Scheduler.	16/05/2014
1.02	2, 3	Add BRDF Photometer	21/05/2014
1.03	4, 5	Add Polarized Photometer Add BRDF 12 filters Photometer	29/07/2014

## 2 NE Photometer

### 2.1. Group description

Group name	Measures
Group A	3 SUN;
Group B	3 SUN; HYB; 3 SUN; ALMU;
Group C	3 SUN; HYB; 3 SUN; ALMU; 3 SUN; PP;
Group D	3 SUN; CRO; BLACK
Group E	3 SUN; ALMU
Group L	3 LUN;

Definitions:

- 3 SUN: Three sun (including Curvature cross).
- 3 LUN: Three moon.
- ALMU: Almucantar.
- HYB: Hybrid.
- PP: Principal Plane.
- CRO: Sun cross.
- BLACK: Black measures.

### 2.2. Scheduler list and time

#### 2.2.1. Sun

The NE Photometer executes a list of scenario every day. The Photometer does sun measurements from sun air mass 7 the morning to sun air mass 7 the evening. The morning and afternoon, the list is the same but the action's times are symmetrically opposed after 12H00.

The list contains a variable list of scenario from Air mass 7 to Air mass 1.7 and a fixed list from 09H00 AM to 3H00 PM. There is a gap list between Air mass 1.7 and 9H00 which can be executed from 7H30 AM to 8H45 AM, with a period of 15 minutes. The gap scenario list is executed after Air mass 1.7 and before 09H00 AM.

The curvature cross is executed after each 3 SUN except in case of clouds.

List of air mass scenarios:

Air mass	Group
Air mass 7.0	Group A
Air mass 6.5	Group A

Air mass 6.0	Group A
Air mass 5.5	Group A
Air mass 5.0	Group A
Air mass 4.5	Group A
Air mass 4.0	Group E
Air mass 3.8	Group A
Air mass 3.6	Group A
Air mass 3.4	Group A
Air mass 3.2	Group A
Air mass 3.0	Group C
Air mass 2.8	Group A
Air mass 2.6	Group A
Air mass 2.4	Group A
Air mass 2.2	Group A
Air mass 2.0	Group B
Air mass 1.7	Group B

List of gaped scenarios:

Time	Group
07H30	Group A
07H45	Group A
08H00	Group C
08H15	Group A
08H30	Group A
08H45	Group A

List of fixed scenarios:

Time	Group
09H00	Group C
09H15	Group D
09H30	Group A
09H45	Group A
10H00	Group C
10H15	Group A

10H30	Group A
10H45	Group A
11H00	Group C
11H15	Group A
11H30	Group A
11H45	Group A
12H00	Group C

### 2.2.2. Moon

The 3 LUN scenario is a periodic scenario which is executed during the night with a period defined by the user in the settings. However, all followings conditions must be valid:

- Moon enable must be set in the settings.
- Sun zenith must be below than air mass -7.
- Moon zenith must be higher than air mass 7.
- The Moon phase must be between the first quarter and the last quarter.

## 3 BRDF Photometer

### 3.1. Group description

Group name	Measures
Group S	3 SUN; ALMU(1); PP; BRDF(2); BLACK;

Definitions:

- 3 SUN: Three sun.
- ALMU: Almucantar.
- PP: Principal Plane.
- BRDF: Sol radiance measures from 5° to 60° zenith angles.
- BLACK: Black measures.

(1): The Almucantar is executed only if the sun zenith is between air mass 4.0 and air mass 1.5.

(2): A PARK, GOSUN and 3SUN are executed between each zenith angles change.

### 3.2. Scheduler list and time

The BRDF Photometer executes a periodic Group of scenario every day. The Photometer does measurements from sun air mass 5 the morning to sun air mass 5 the evening.



When the Photometer is in automatic mode and no scenario is running, a Group S starts at the next round minute of the True Solar Time.

## 4 Polarized Photometer

### 4.1. Group description

Group name	Measures
Group A	3 SUN;
Group B	3 SUN; HYB; 3 SUN; HYBP; 3 SUN; ALMU; 3 SUN; ALMUP
Group C	3 SUN; HYB; 3 SUN; HYBP; 3 SUN; ALMU; 3 SUN; ALMUP; 3 SUN; PP; 3 SUN; PPP
Group D	3 SUN; CRO; BLACK
Group E	3 SUN; ALMU; 3 SUN; ALMUP

Definitions:

- 3 SUN: Three sun (including Curvature cross).
- ALMU: Almucantar.
- ALMUP: Polarized Almucantar.
- HYB: Hybrid.
- HYBP: Polarized Hybrid.
- PP: Principal Plane.
- PPP: Polarized Principal Plane.
- CRO: Sun cross.
- BLACK: Black measures.

### 4.2. Scheduler list and time

The scheduler is the same as a NE Photometer. See chapter 2.2.1.

## 5 BRDF 12 filters Photometer

### 5.1. Group description

Group name	Measures
Group S	3 SUN; ALMU <sup>(1)</sup> ; PP; BRDF <sup>(2)</sup> ; BLACK;

Definitions:

- 3 SUN: Three sun.
- ALMU: Almucantar.

- PP: Principal Plane.
  - BRDF: Sol radiance measures from 5° to 60° zenith angles.
  - BLACK: Black measures.
- (<sup>1</sup>): The Almucantar is executed only if the sun zenith is between air mass 4.0 and air mass 1.5.
- (<sup>2</sup>): A PARK, GOSUN and 3SUN are executed between each zenith angles change.

## 5.2. *Scheduler list and time*

The BRDF 12 filters Photometer executes a periodic Group of scenario every day. The Photometer does measurements from sun air mass 5 the morning to sun air mass 5 the evening.

When the Photometer is in automatic mode and no scenario is running, a Group S starts at the next round minute of the True Solar Time.